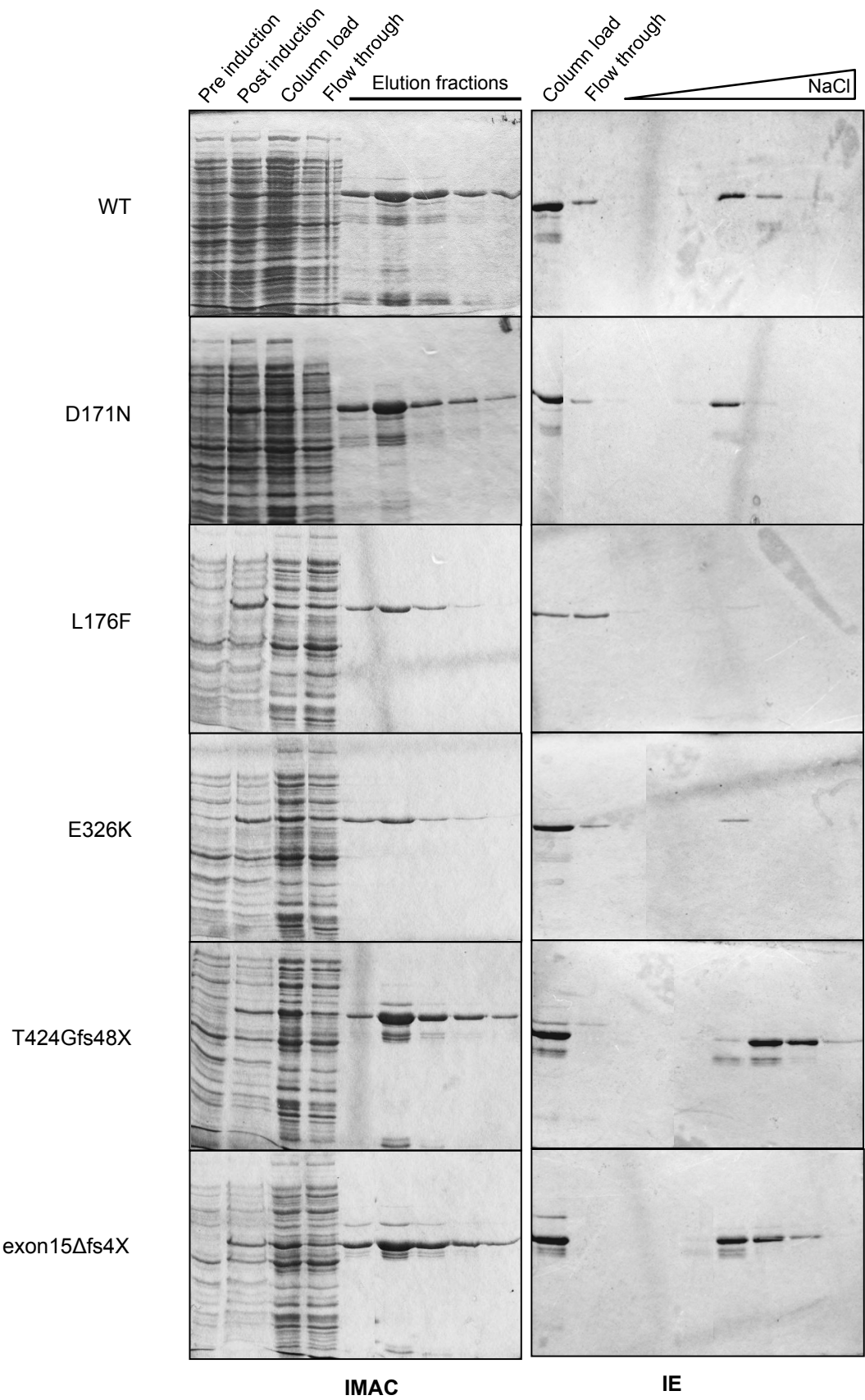


**Supplementary Fig.1. Purification of wild type and mutant recombinant histidine-tagged PNKP.** Histidine-tagged PNKP was expressed in *E.coli* strain BL21 (DE3) and purified by immobilized metal chelate chromatography (IMAC, *left*) followed by cation exchange chromatography (IE, *right*). Aliquots of the indicated purification steps were analysed by SDS-PAGE and visualized by Coomassie Brilliant Blue. Note that the altered chromatographic behaviour of PNKP<sup>L176F</sup>, which failed to bind the cation exchange chromatography column.

**Supplementary Fig.2. Impact of MCSZ mutations on the sub-cellular localisation of YFP-PNKP.** Expression constructs encoding YFP-tagged WT or the indicated mutant PNKP were transiently transfected into A549 cells and, after 24 hr, nuclei were counterstained with DAPI and cells analysed by direct fluorescence microscopy. Representative images are shown.

# Supplementary Figure 1



# Supplementary Figure 2

